Claims

1. An edible flavor improver comprising an essentially non-volatile mixture containing non-sucrose components of sugar beet extract, said mixture being effective in enhancing the organoleptic characteristic(s) of ingestible products and being obtainable by fractionation of said sugar beet extract.

2. The flavor improver of claim 1, wherein said non-sucrose components in combination are effective in enhancing said organoleptic characteristics.

3. The flavor improver of claim 1 or 2, wherein said fractionation is selected from crystallization, evaporation, chromatographic separation, membrane filtration and combinations thereof.

4. The flavor improver of claim 3, wherein said sugar beet extract has been desugarized and evaporated prior to said fractionation.

5. The flavor improver of claim 4, wherein said sugar beet extract comprises molasses.

6. The flavor improver of claim 3 or 5, wherein said fractionation comprises ultrafiltration and said mixture has permeated a filter having a molar mass cut-off of 50 kD, preferably 10 kD.

7. The flavor improver according to claim 3 or 5, wherein said fractionation comprises chromatographic fractionation.

8. The flavor improver of claim 7, wherein said chromatographic fractionation is a batch fractionation or a continuous fractionation.

9. The flavor improver of claim 7, wherein said fraction comprises a front end fraction of a batch chromatographic fractionation of said extract.

10. The flavor improver of claim 8, wherein said chromatographic fraction comprises an essentially non-betaine fraction of said extract.

11. The flavor improver of claim 1, wherein said mixture contains a multitude of compounds deriving from the beet sugar process and wherein the main components comprise salts, organic acids and compounds other than monosaccharides and betaine.

12. The flavor improver of claim 11, wherein the main cations of said salts are selected from sodium, potassium and calcium and the main anions of said salts are selected from sulphate, chloride, nitrate, phosphate and oxalate.

13. The flavor improver of claim11, wherein said mixture contains organic acids selected from lactic acid, pyrrolidone carboxylic acid (PCA), acetic acid, citric acid and mixtures thereof.

14. The flavor improver according to claim 13, wherein said mixture contains less than a total of 45%, preferably 35 to 10% of said organic acids calculated on the dry substance.

15. The flavor improver according to claim 11, wherein said mixture contains raffinose and/or sucrose in an amount of less than 60%, preferably less than 20%, most preferably less than 10% calculated on the dry substance, respectively.

16. The flavor improver according to claim 11, wherein said mixture contains less than 1%, preferably less than 0.5% of each of glucose and fructose calculated on the dry substance.

17. The flavor improver according to claim 11, wherein said mixture contains less than 10%, preferably less than 5% of amino acids calculated on the dry substance.

18. The flavor improver of claim 1, wherein said mixture is provided in admixture with a nutritionally and/or pharmaceutically acceptable vehicle or carrier.

19. The flavor improver of claim 1 wherein said mixture is effective in enhancing the organoleptic characteristic(s) by providing or enhancing sugar like taste, improving mouth feel, changing fruit flavor profile, reducing or masking bitterness, reducing or masking artificial sweetener taste, improving aftertaste, decreasing acidity, reducing sharpness, prolonging sweet taste or combinations thereof.

20. The flavor improver of claim 1, wherein said ingestible product comprises nutritionally and/or pharmaceutically acceptable products selected from beverages, dairy products, fruit and berry products, savory, soya based products, confectionery, bakery products, desserts, and sweetened pharmaceutical products.

21. The flavor improver of claim 1 wherein said ingestible product is a sweetened product which is sweetened with sucrose or a non-sucrose sweetener selected from high fructose corn syrup, polyols and artificial sweeteners like saccharin, aspartame, potassium acesulfame, sucralose, neotame, alitame, cyclamate as well as combinations thereof.

22. The flavor improver of claim1, wherein said sugar beet extract is molasses and said fractionation comprises fractionation by chromatographic separation, ultra filtration or a combination thereof.

23. The flavor improver of claim 1, wherein said fractionation process comprises, in any desired sequence, at least one membrane filtration and at least one chromatographic fractionation of a liquid withdrawn from a beet sugar manufacturing process, and recovering a product comprising a compound or a mixture of compounds having a molar mass lower than about 50 kD, said compounds consisting predominantly of salts and molecules having a molar mass higher or lower than that of saccharose.

24. The flavor improver of claim 1, which is prepared by a process comprising membrane filtration of a liquid withdrawn from a beet sugar manufacturing process to obtain a retentate and a permeate; recovering said permeate; chromatographic fractionation of said permeate to obtain a front end fraction and at least one other fraction; and recovering said front end fraction.

25. The flavor improver of claim 1, which is prepared by a process comprising ultrafiltration of thick juice withdrawn from a beet sugar manufacturing process using an ultrafiltration membrane having a cut-off size of up to about 10 kD to obtain a permeate and a retentate; recovering said permeate; chromatographic fractionation of said permeate to obtain a front-end fraction and at least one other fraction; and recovering said front-end fraction.

26. The flavor improver of claim 1, which is prepared by a process comprising chromatographic fractionation of molasses withdrawn from a beet sugar manufacturing process to obtain a front-end fraction and at least one other fraction; recovering said front-end fraction; and optional membrane filtration of said front-end fraction.

27. The flavor improver of claim 1 which is prepared by a process comprising chromatographic fractionation of molasses withdrawn from a beet sugar manufacturing process to obtain a front-end fraction and at least one other fraction; recovering said front-end fraction; ultrafiltration of said front-end fraction using an ultrafiltration membrane having a cut-off size of up to 10

kD to obtain a permeate and a retentate; and recovering said ultrafiltration permeate; and optional concentration of said ultrafiltration permeate.

28. A process for producing an edible flavor improver comprising the steps of providing a sugar beet extract, fractionating said extract, and recovering a fraction comprising an essentially non-volatile mixture containing non-sucrose components of said sugar beet extract, which mixture is effective in enhancing the organoleptic characteristic(s) of ingestible products.

29. The process according to claim 28, wherein said fractionation is selected from crystallization, evaporation, chromatographic separation, membrane filtration and combinations thereof.

30. The process according to claim 29, wherein said process includes crystallization and/or chromatographic separation to remove sucrose and evaporation to remove volatile components.

31. The process according to claim 29, wherein said sugar beet extract comprises molasses.

32. The process according to claim 29, wherein said fractionation comprises ultrafiltration with a membrane having a cut-off size of up to 50 kD, preferably up to 10 kD and said recovery comprises recovering the permeate of said filtration.

33. The process according to claim 32, wherein said fractionation comprises a chromatographic separation and said recovery comprises recovery of a desugarized and/or debetainized fraction

34. The process according to claim 33, wherein said chromatographic separation is carried out using an acid cation exchange resin, preferably a strongly acid cation exchange resin in sodium or potassium form.

35. The process according to claim 34, wherein said extract comprises molasses and said fractionation is provided by a process selected from chromatographic separation, membrane filtration and combinations thereof.

36. The process according to claim 28, wherein said fractionation comprises chromatographic separation to cause desugarization and debetainization of said extract and ultra filtration to cause removal of compounds having a molar mass higher than 50 kD.

37. The process according to claim 28, wherein said sugar beet extract and/or said fraction is additionally treated by ion exchange and/or carbonation.

38. A process for preparing a flavor improver product based on a sugar beet extract, comprising at least one membrane filtration and/or at least one chromatographic fractionation, in any desired sequence, of a liquid withdrawn from a beet sugar manufacturing process; and recovering a product comprising a compound or a mixture of compounds having a molar mass lower than about 50 kD, said compounds consisting predominantly of salts and molecules having a molar mass higher or lower than that of saccharose.

39. Use of a product according to any one of claims 1 to 27 as a flavor improver in a nutritionally or pharmaceutically acceptable ingestible product in an amount which is effective in enhancing the organoleptic characteristics of said product.

40. The use according to claim 39, wherein said product is a sweetened product selected from a sucrose sweetened product, a non-sucrose sweetened product and a reduced sucrose sweetened product.

41. The use according to claim 39 or 40, wherein said product is sweetened with a non-sucrose sweetener and said flavor improver enhances the organoleptic properties of said product so as to make it more like a sucrose sweetened product.

42. The use according to claim 41, wherein said non-sucrose sweetener is selected from the group consisting of high fructose corn syrup, polyols and artifical sweeteners like saccharin, aspartame, potassium acesulfame, sucralose, neotame, alitame, cyclamate, and combinations thereof.

43. The use according to claim 39, wherein said product is selected from beverages, dairy products, fruit and berry products, savoury, soya based products, confectionery, bakery products, desserts, and sweetened pharmaceutical products.

44. The use according to claim 42, wherein said flavor improver is used in said ingestible product in an amount between 1 and 2000 ppm, preferably 5 to 500 ppm, most preferably 10 to 200 ppm (as dry substance of the flavor improver).

45. The use according to claim 43, wherein said product is a beverage selected from soft drinks, sports drinks, diet drinks, juices, juice drinks, tea, coffee, beer, cider and flavoured alcoholic beverages.

46. The use according to claim 39, wherein said organoleptic characteristics are selected from sugar-like taste, ripe fruit flavor, reduced acidity, reduced or masked bitterness, reduced or masked artificial sweetener taste, reduced sharpness, increased sweetness, prolonged sweet taste, improved texture, improved mouth feel, improved after taste, and combinations thereof.

47. The use according to claim 45, wherein said beverage is a diet soft drink sweetened with a non-sucrose sweetener and said flavor improver

is used to bring the taste of said diet soft drink closer to the taste of a corresponding sucrose sweetened soft drink.

48. The use according to claim 47, wherein said soft drink is a cola drink.

49. The use according to claim 43, wherein said product is a fruit flavored product and said flavor improver is used to improve the flavor profile of the product to a more ripe fruit flavor than without said flavor improver.

50. The use according to claim 48, wherein said product is selected from a jam, a marmalade, a fruit flavoured yogurt, a fruit drink, an ice cream, a fruit confectionery and a fruit dessert.

51. The use according to claim 45, wherein said beverage is beer or a flavored alcoholic drink and said flavor improver is used to reduce the bitterness, acidity and/or alcohol burn taste.

52. A process for modifying the organoleptic characteristics of ingestible products, comprising adding to said product an effective amount of a flavor improver according to any one of claims 1 to 27.

53. A sweetening composition comprising a sweetener and an amount of the flavor improver according to any one of claims 1 to 27 which is effective in enhancing the organoleptic characteristic(s) of said sweetener in an ingestible product.

54. An ingestible product which is sweetened with a sucrose or non-sucrose sweetener and which includes an effective amount of the flavor improver according to any one of claims 1 to 27.